

# LED-12W Dimming Series

## Switch Mode LED Drivers

Thomas Research Products

Rev 9-24-21

### Electrical Specifications

|                      |  |
|----------------------|--|
| Input Voltage Range: | 120-277 Vac Nom. (108-305 V Min/Max)     |
| Frequency:           | 50/60 Hz Nom. (47-63 Hz Min/Max)         |
| Power Factor:        | >0.90                                    |
| Inrush Current:      | <10.0 Amps max @ 230Vac, cold start 25°C |
| Input Current:       | 0.15 Amps max at 120Vac                  |
| Maximum Power:       | 12W                                      |
| Line Regulation:     | ± 3%                                     |
| Load Regulation:     | ± 4%                                     |
| THD:                 | ≤ 20%                                    |
| Hold Up Time:        | Half Cycle                               |

### Protections

|               |               |
|---------------|---------------|
| Over-voltage  | Output        |
| Over-current  | Output        |
| Short Circuit | Auto Recovery |

### Environmental Specifications

|  |  |
|--|--|
| Max Case Life Temp:<br>(5 year warranty) | 68°C   |
| Maximum Case Temp:                       | 90°C   |
| Minimum Starting Temp:                   | -30°C  |
| Storage Temperature:                     | -40°C to +85°C   |
| Humidity:                                | 5% to 95%  |
| Cooling:                                 | Convection   |
| Vibration Frequency:                     | 5 to 55 Hz/2g, 30 minutes  |
| Sound Rating:                            | Class A  |
| MTBF:                                    | >550,000 Hours @ full load & 40°C ambient conditions per MIL-217F Notice 2 |
| Weight:                                  | 5.8 oz (164.43 g)  |

- Total Power: 12 Watts
- Input Voltage: 120-277 Vac Nom.
- UL Dry & Damp Location Rated
- High Power Factor
- UL Type HL Rated for Hazardous Locations
- Constant Current, Dimming with Isolation
- Black Magic Thermal Advantage™ Plastic Housing

### Dimming Standard:

0-10V & Resistance dimmable models include an extra two wires +Purple/-Pink on the output side. "-D"  
Compatible with most quality 0-10V wall dimmers.  
See page 3 for dimming specifications.

### Note:

LED drivers are designed and intended to operate LED loads only. Non-LED loading may be outside the specified design limits of our LED drivers, and therefore cannot be covered by any warranty. If you desire to use our LED drivers to operate non-LED loads please contact us to discuss compatibility.



### Constant Current Models

| SAP PN   | Model             | Output Current (mA ±4%) | Output Voltage Range (Vdc) | Max. Output Power (W) | Typical Efficiency |
|----------|-------------------|-------------------------|----------------------------|-----------------------|--------------------|
| 93147686 | LED12W-36-C0250-D | 250                     | 18-36                      | 9                     | 77%                |
| 93147688 | LED12W-48-C0250-D | 250                     | 24-48                      | 12                    | 80%                |
| 93147687 | LED12W-36-C0350-D | 350                     | 18-36                      | 12.6                  | 80%                |
| 93147685 | LED12W-24-C0500-D | 500                     | 12-24                      | 12                    | 78%                |
| 93147683 | LED12W-16-C0700-D | 700                     | 8-16                       | 11.2                  | 78%                |
| 93147684 | LED12W-16-C0800-D | 800                     | 8-16                       | 12.8                  | 78%                |
| 93147682 | LED12W-12-C1000-D | 1000                    | 6-12                       | 12                    | 77%                |

Class 2: US/Canada

| Safety Cert.       | Standard                            |
|--------------------|-------------------------------------|
| UL/CUL             | UL8750                              |
| CSA                | 22.2                                |
| CE                 | EN61347                             |
| EMC Standard       | Notes                               |
| EN61000-3-2        |                                     |
| EN61000-3-3        | Class C                             |
| FCC, 47CFR Part 15 | Class B                             |
| EN6100-4-5         | 2KV L-N, 8/20 µsec Surge Protection |

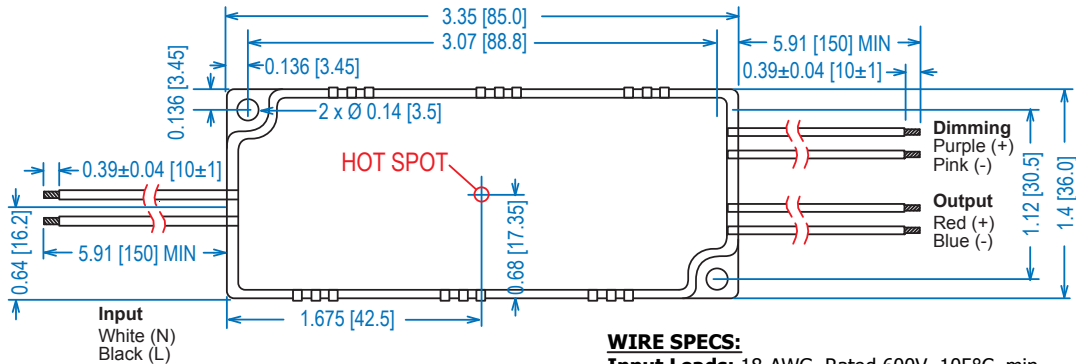
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## Dimensions

IN [mm]



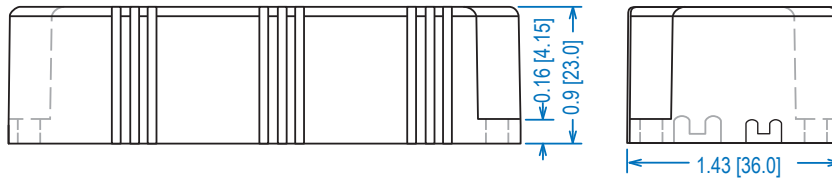
### WIRE SPECS:

**Input Leads:** 18-AWG, Rated 600V, 105°C, min.

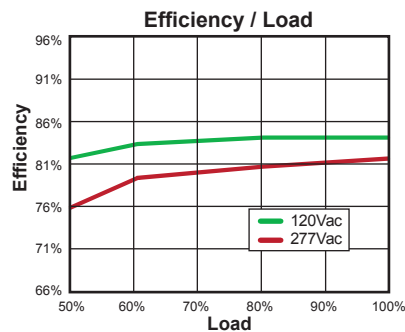
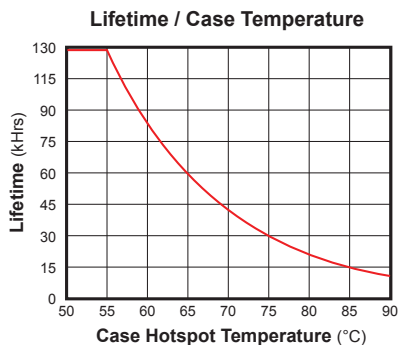
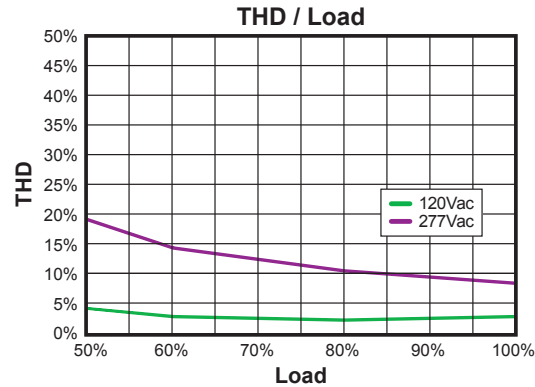
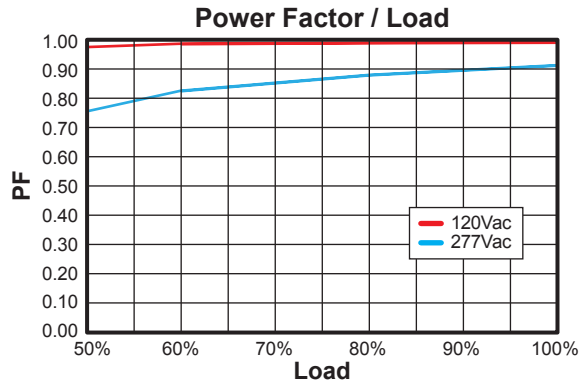
**Output Leads:** 18-AWG, Rated 600V, 105°C, min.

**Dimming Leads:** 22-AWG, Rated 600V, 105°C.

All wires are stranded with solder dipped ends



## Power Characteristics



Note: The area under the life-temperature curve represents where the driver has highly reliable operation within specification. Driver performance may drift out of published specifications as the hours of operation exceed the curve at a given temperature. Higher operating temperatures increase the chances of a failure to function. Other electrical, mechanical and environmental factors affect driver lifetime but are not represented in this calculation.

### UL Conditions of Acceptability

See website for additional information

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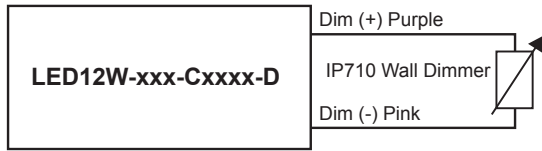
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## “-D” Option: 0-10VDC and Resistance Dimming

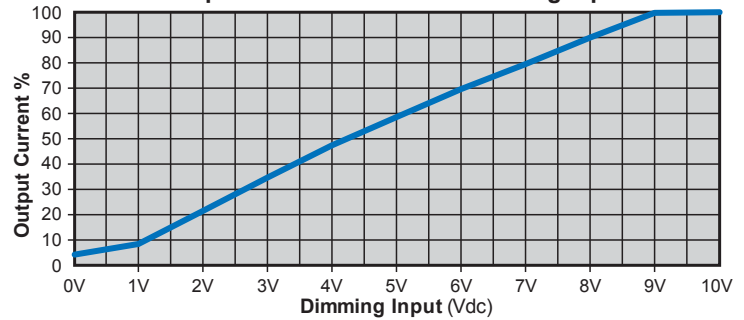
| Parameters                                      | Minimum | Typical | Maximum |
|---|---------|---------|---------|
| Source Current out of 0-10V Purple Wire         | 0 mA    | —       | 2mA     |
| Absolute Voltage Range on 0-10V (+) Purple Wire | -2.0V   | —       | +15V    |

### Typical Dimming Circuit



(Dimmer must be current-sink type control)

Output Current / 0-10VDC Dimming Input



### Notes:

1. 0-10V dimmable version comes with an extra two wires +Purple/-Pink on the output side.
2. Compatible with most 0-10V Wall Slide dimmers and direct 0-10V analog signal. Recommended dimmer is Leviton IP710 or equivalent.
3. 0-10V dimmable version output will be  $\leq 10\%$  @ 0-1.0V
4. 0-10V dimmable version output will be 100% with Purple/Pink open and minimum with Purple/Pink Shorted.
5. For units manufactured before Date of January 1st 2022, the Dim(-) wire will be gray, not pink.